Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. – 20. (Canceled)

21. (Original) An energy storage product, consisting of:

a dry fibrillized mix of dry binder and dry carbon particles formed into a continuous self-supporting adhesive electrode film without the substantial use of any processing additives.

22. (Previously presented) The product of claim 21, wherein the processing additives are selected from a group consisting of hydrocarbons, high boiling point solvents, antifoaming agents, surfactants, dispersion aids, water, pyrrolidone, mineral spirits, ketones, naphtha, acetates, alcohols, glycols, toluene, xylene, and isoparaffinic fluids.

23. (Original) The product of claim 21, wherein at least some of the dry binder comprises a fibrillized dry binder.

24. (Original) The product of claim 23, wherein the binder is fibrillized by a high-pressure gas.

25. (Original) The product of claim 24, wherein the high-pressure comprises a pressure of more than 60 PSI.

26. (Original) The product of claim 25, wherein the gas comprises a water content of less than about 20 PPM.

27. (Previously presented) An electrode, the electrode comprising:

a self-supporting dry film including compacted dry binder and dry carbon particles,

wherein the particles are dry intermixed so as to be distributed within the dry film with a gradually decreasing gradient.

28. (Canceled)

29. (Original) The electrode of claim 27, further comprising a collector, wherein a first side of the dry film is coupled to the collector.

30. (Original) The electrode of claim 29, further comprising a separator, wherein a second side of the dry film is coupled to the separator.

31. (Original) The electrode of claim 30, wherein the dry binder comprises a heated thermoplastic.

32. (Original) The electrode of claim 31, wherein the dry carbon particles comprise conductive carbon particles.

33. (Original) The electrode of claim 30, wherein the dry binder comprises a dry flouropolymer.

34. (Original) The electrode of claim 33, wherein the dry carbon particles comprise dry conductive carbon particles and dry activated carbon particles.

35. (Original) The electrode of claim 29, wherein the dry film is a heated dry film.

36. (Original) The electrode of claim 35, wherein the dry film comprises a density of about .50 to .70 gm/cm^2.

37. (Previously presented) The electrode of claim 27, wherein the dry intermixed particles comprise two mixes, wherein as a percentage of a weight of a first mix, the first mix comprises between about 80% to 95% activated carbon, between about 0% to 15% conductive carbon, and between about 3% to 15% fibrillizable flouropolymer; and wherein as percentage of weight of a second mix, the second mix comprises about 40% to 60% thermoplastic binder, and about 40% to 60% conductive carbon.

38. (Original) The electrode of claim 37, wherein the dry film comprises about 1 to 100 parts of the second mix for about every 1000 parts of the first mix.

39. (Previously presented) A capacitor, comprising;

a plurality of dry processed particles, the dry processed particles including binder and carbon particles; and

a separator,

wherein the dry processed particles are dry bonded to the separator.

40. (Original) The capacitor of claim 39, wherein at least some of the dry processed particles are formed as a self supporting dry electrode film, and wherein at least some of the dry processed particles are compacted against the dry electrode film.

41. (Original) The capacitor of claim 39, further comprising a current collector, wherein the dry processed particles are dry bonded to the current collector, and wherein the current collector comprises aluminum.

42. (Canceled)

43. (Previously presented) The capacitor of claim 39, wherein the separator comprises paper.

44. (Original) The capacitor of claim 39, wherein the capacitor is rated to operate at a maximum voltage of 3.0 volts or less.

45. (Original) The capacitor of claim 39, further comprising an additive based electrode film, and wherein the dry processed particles are compacted against the additive base electrode film.

46. (Original) The capacitor of claim 39, wherein the dry processed particles are compacted into a dry self-supporting electrode film by a single pass compaction device.

47. (Original) The capacitor of claim 39, further comprising a sealed aluminum housing, wherein the dry processed particles are disposed within the housing.

48. (Original) The capacitor of claim 41, further comprising a sealed aluminum housing, wherein the current collector is coupled to the housing by a laser weld.

49. (Original) The capacitor of claim 48, wherein the capacitor comprises a jellyroll type electrode.

50.- 64. (Canceled)

65. (Original) An energy storage device electrode, comprising:

a dry film, wherein the dry film comprises intermixed dry carbon and dry binder particles, wherein some of the dry carbon and dry binder particles are intermixed within the dry film with a first gradient, wherein some of the dry carbon and dry binder particles are intermixed within the dry film with an opposing different second gradient, wherein the first gradient of particles provides electrode functionality, and wherein the second gradient of particles provides adhesive functionality.

66.-75. (Canceled)

76. (Previously presented) An energy storage device, comprising:

a housing;

a collector, the collector having a surface;

an electrolyte, the electrolyte disposed within the housing; and

an electrode film consisting of a dry fibrillized mix of dry binder and dry carbon particles formed into a continuous self-supporting adhesive electrode film without the substantial use of any processing additives, wherein the electrode film is impregnated with the electrolyte, and wherein the electrode film is coupled directly to the surface.

77. (Original) The device of claim 76, wherein the electrode film is substantially insoluble in the electrolyte.

78. (Original) The device of claim 76, wherein the electrode comprises a dry adhesive binder, wherein the binder is substantially insoluble in the electrolyte.

79. (Original) The device of claim 78, wherein the adhesive binder comprises a thermoplastic, and wherein the thermoplastic couples the electrode film to the collector.

80. (Original) The device of claim 78, wherein the electrolyte is an acetonitrile type of electrolyte.

81. (Previously presented) An energy storage device structure, comprising:

one or more electrode film, wherein the one or more electrode film is both conductive and adhesive and consists of a dry fibrillized mix of dry binder and dry carbon particles formed into a continuous self-supporting adhesive electrode film without the substantial use of any processing additives, and wherein the one or more electrode film is coupled directly to a current collector.

82. (Previously presented) An energy storage device structure, comprising:

one or more self-supporting dry process based electrode film comprising compacted dry binder and dry carbon particles, wherein the particles are dry intermixed so as to be distributed within the dry film with a gradually decreasing gradient.

83. (Original) The structure of claim 82, wherein the film comprises conductive and adhesive particles.

84. (Original) The structure of claim 83, wherein the adhesive particles comprise a thermoplastic.

85. (Original) The structure of claim 84, wherein the electrode is a capacitor electrode.

86. (Previously presented) A capacitor structure, comprising

a collector; and

a plurality of dry processed particles coupled to the collector, wherein the particles define a long integral dry electrode film,

wherein the film comprises one or more blend of dry particles,

wherein a first of the particles comprises activated carbon, conductive carbon, and a fibrillizable binder; and wherein a second of the particles comprises conductive carbon and adhesive binder, and

wherein as a percentage of a weight of the film, the first of the particles comprises between about 80% to 95% activated carbon, between about 0% to 15% conductive carbon, and between about 3% to 15% fibrillizable flouropolymer; and wherein as percentage of weight of the film, the second of the particles comprises about 40% to 60% binder, and about 40% to 60% conductive carbon.

87. (Original) The structure of claim 86, wherein the film comprises dry conductive carbon and dry adhesive materials.

88. – 90. (Canceled)

91. (Previously presented) The structure of claim 86, wherein the film comprises about 1 to 100 parts of the second of the particles for about every 1000 parts of the first of the particles.

92. (Previously presented) The structure of claim 86, wherein the dry particles comprise conductive carbon, and a thermoplastic binder.

93. (Original) The structure of claim 86, wherein the film is at least 5 meters long.

94. (Original) The structure of claim 86, wherein the film is self supporting.

95. (Original) The structure of claim 87, wherein the adhesive materials are selected from a group consisting of thermoplastic, thermoset, and radiation set materials.

96. (Previously presented) An electrode, comprising:

a collector; and

a dry process based electrode film consisting of a dry fibrillized mix of dry binder and dry carbon particles formed into a continuous self-supporting adhesive electrode film without the substantial use of any processing additives, wherein the electrode film is coupled to the collector.

97. (Original) The electrode structure of claim 96, wherein the binder particles comprise a thermoplastic.

98. (Previously Presented) The electrode of claim 96, wherein the dry carbon particles comprise conductive carbon.

99. (Previously Presented) The electrode of claim 96, wherein the dry carbon particles comprise activated carbon.

100. (Currently amended) ~~The electrode of claim 96, wherein the dry fibrillized mix further consists of metal conductive particles formed into the continuous self-supporting adhesive electrode film along with the dry binder and dry carbon particles~~
An electrode, comprising:

a collector; and

a dry process based electrode film consisting of a dry fibrillized mix of dry binder, dry carbon particles, and metal conductive particles formed into a continuous self-supporting adhesive electrode film without the substantial use of any processing additives, wherein the electrode film is coupled to the collector.

101. – 102. (Canceled)

103. (Previously presented) A capacitor, comprising

a continuous self supporting dry adhesive electrode film consisting of a dry fibrillized mix of dry binder and dry carbon particles formed into the continuous self supporting adhesive electrode film without the substantial use of any processing additives, the film coupled to a collector, the collector shaped into a roll disposed within a sealed aluminum housing.

104. (Previously presented) The capacitor of claim 103, wherein the continuous self supporting dry adhesive electrode film comprises substantially no hydrocarbons, high boiling point solvents, antifoaming agents, surfactants, dispersion aids, water, pyrrolidone, mineral spirits, ketones, naphtha, acetates, alcohols, glycols, toluene, xylene, and/or isoparaffinic fluids.

105. (Canceled)